

CLAIMS

1. A method of diagnosing HCC or a predisposition for developing HCC in a subject, comprising determining a level of expression of *MGC47816* or *HES6* in a patient-derived biological sample, wherein an increase in said sample expression level as compared to a normal control level of said gene indicates that said subject suffers from or is at risk of developing HCC.
- 5 2. The method of claim 1, wherein said sample expression level is at least 10% greater than said normal control level.
- 10 3. The method of claim 1, wherein the expression level is determined by any one method selected from group consisting of:
 - (a) detecting mRNA of *MGC47816* or *HES6*,
 - (b) detecting a protein encoded by *MGC47816* or *HES6*, and
 - (c) detecting a biological activity of a protein encoded by *MGC47816* or *HES6*,
- 15 4. The method of claim 3, wherein said detection is carried out on a DNA array.
5. The method of claim 1, wherein said patient-derived biological sample comprises an epithelial cell.
- 20 6. The method of claim 1, wherein said patient-derived biological sample comprises a hepatocellular carcinoma cell.
7. The method of claim 1, wherein said patient-derived biological sample comprises an epithelial cell from a hepatocellular carcinoma.
8. A method of screening for a compound for treating or preventing HCC, said method comprising the steps of:
 - a) contacting a test compound with a polypeptide encoded by *MGC47816* or *HES6*;
 - b) detecting the binding activity between the polypeptide and the test compound; and
 - c) selecting the test compound that binds to the polypeptide.
- 25 9. A method of screening for a compound for treating or preventing HCC, said method comprising the steps of:
 - a) contacting a candidate compound with a cell expressing *MGC47816* or *HES6*, and
 - b) selecting the candidate compound that reduces the expression level of *MGC47816* or *HES6*.
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10. The method of claim 9, wherein said cell comprises a hepatocellular carcinoma cell.
11. A method of screening for a compound for treating or preventing HCC, said method comprising the steps of:
 - 5 a) contacting a test compound with a polypeptide encoded by *MGC47816* or *HES6*;
 - b) detecting the biological activity of the polypeptide of step (a); and
 - c) selecting the test compound that suppresses the biological activity of the polypeptide as compared to the biological activity detected in the absence
- 10 of the test compound.
12. The method of claim 11, wherein the biological activity of the polypeptide is cell proliferative activity.
13. A method of screening for compound for treating or preventing HCC, said method comprising the steps of:
 - 15 a) contacting a candidate compound with a cell into which a vector, comprising the transcriptional regulatory region of *MGC47816* or *HES6* and a reporter gene that is expressed under the control of the transcriptional regulatory region, has been introduced
 - b) measuring the expression or activity of said reporter gene; and
 - 20 c) selecting the candidate compound that reduces the expression or activity of said reporter gene, as compared to a control.
14. A kit comprising a detection reagent which binds to (a) the nucleic acid sequence of *MGC47816* or *HES6* or (b) a polypeptide encoded thereby.
15. A method of treating or preventing HCC in a subject comprising administering to said subject an antisense composition, wherein said antisense composition comprises a nucleotide sequence complementary to a coding sequence of *MGC47816* or *HES6*.
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16. A method of treating or preventing HCC in a subject comprising administering to said subject an siRNA composition, wherein said siRNA composition reduces the expression of *MGC47816* or *HES6*.
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17. The method of claim 16, wherein the siRNA comprises a sense strand comprising a nucleotide sequence selected from the group consisting of SEQ ID NO: 19 and 26 as the target sequence.
18. A method for treating or preventing HCC in a subject comprising the step of administering to said subject a pharmaceutically effective amount of an

antibody, or fragment thereof, that binds to a protein encoded by *MGC47816* or *HES6*.

19. A method of treating or preventing HCC in a subject comprising administering to said subject a vaccine comprising (a) a polypeptide encoded by *MGC47816* or *HES6*, (b) an immunologically active fragment of said polypeptide, or (c) a polynucleotide encoding said polypeptide.

5 20. A method for treating or preventing HCC in a subject, said method comprising the step of administering a compound that is obtained by the method according to any one of claims 8-13.

10 21. A composition for treating or preventing HCC, said composition comprising a pharmaceutically effective amount of an antisense polynucleotide or small interfering RNA (siRNA) against *MGC47816* or *HES6* as an active ingredient, and a pharmaceutically acceptable carrier.

15 22. The composition of claim 21, wherein the siRNA comprises a sense strand comprising a nucleotide sequence selected from the group consisting of SEQ ID NO: 19 and 26 as the target sequence.

23. A composition for treating or preventing HCC, said composition comprising a pharmaceutically effective amount of an antibody or fragment thereof that binds to a protein encoded by *MGC47816* or *HES6* as an active ingredient, and a pharmaceutically acceptable carrier.

20 24. A composition for treating or preventing HCC, said composition comprising a pharmaceutically effective amount of a compound selected by the method of any one of claims 8-13 as an active ingredient, and a pharmaceutically acceptable carrier

25 25. A small interfering RNA, wherein the sense strand thereof comprises a nucleotide sequence selected from the group consisting of SEQ ID NO: 19 and 26 as the target sequence.